

## Prof. Dr. Dietmar Kuhl

### Affiliation

Institute for Molecular and Cellular Cognition  
Center for Molecular Neurobiology (ZMNH)  
University Medical Center Hamburg-Eppendorf  
Falkenried 94  
20251 Hamburg  
Tel: +49-40-7410-56277  
Fax: +49-40-7410-55101  
Email: [kuhl@zmnh.uni-hamburg.de](mailto:kuhl@zmnh.uni-hamburg.de)



### Date of birth

February 1, 1958

### Education and Professional Experience

1977-1983	Studies of Biology at the J.-W.-Goethe University, Frankfurt
1984-1988	Ph.D. thesis at the Institute for Molecular Biology, University of Zurich, Zurich (Switzerland) with Prof. Dr. C. Weissmann
1989-1991	EMBO Long-term fellow at the College of Physicians and Surgeons, Columbia University, New York (USA) with Prof. Dr. E. Kandel
1991-1993	Research Associate at the Howard Hughes Medical Institute, Columbia University, New York (USA) with Prof. Dr. Eric Kandel
1994-2002	Research group leader at the Center of Molecular Neurobiology (ZMNH), University of Hamburg, Hamburg (Germany)
2002-2008	Full Professor of Molecular Neurobiology and Animal Biochemistry, Faculty of Biology, Chemistry and Pharmacy, FU-Berlin
2005-2008	Member of the Medical Faculty of the Charité-University Medicine Berlin
2005-2008	Speaker of the Research Training Program GRK1123, Learning and Memory Consolidation in the Hippocampal Formation
2006-2008	Faculty of the Graduate School 'Mind and Brain' (HU-Berlin)
2007-2008	Founding Director of the cluster of excellence 'Neurocure' (FU-Berlin/HU-Berlin/Charité)
Since 2008	Full Professor of Neuroscience, Director of the Institute of Cellular and Molecular Cognition, University of Hamburg
Since 2008	Director of the ZMNH

### **Research Fields**

The main goal of our research is to develop molecular biological and biochemical approaches for the identification and study of genes and proteins contributing to physiology and pathophysiology of learning and memory in the mammalian brain. We are using mouse genetics for building bridges between molecular biology, electrophysiology, systems biology, and behavior.

Our group is active in the field of Neurobiology, with the following major areas:

- Mammalian brain neuroplasticity, learning and memory, epilepsy and neurodegeneration
- Regulation of synaptic activity-dependent gene expression, molecular control of synaptic signalling
- trans-acting factors governing RNA transport and local translation in dendrites contributing to synapse specific modifications during plasticity and learning

### 15 most important publications

1. [Kuhl D](#), Delafuente J, Chaturvedi M, Parimoo S, Ryals J, Meyer F, Weissmann C (1987) Reversible silencing of enhancers by sequences derived from the human IFN-alpha promoter. **Cell** 50:1057-1069. Times Cited: 115

2. Kuhl D, Kennedy TE, Barzilai A, Kandel ER (1992) Long-term sensitization training in *Aplysia* leads to an increase in the expression of BiP, the major protein chaperon of the ER. **J Cell Biol** 119:1069-1076. Times Cited: 48
3. Qian Z, Gilbert ME, Colicos MA, Kandel ER, Kuhl D (1993) Tissue-plasminogen activator is induced as an immediate-early gene during seizure, kindling and long-term potentiation. **Nature** 361:453-457. Times Cited: 475
4. Link W, Konietzko U, Kauselmann G, Krug M, Schwanke B, Frey U, Kuhl D (1995) Somatodendritic expression of an immediate early gene is regulated by synaptic activity. **PNAS** 92:5734-5738. Times Cited: 247
5. Frey U, Muller M, Kuhl D (1996) A different form of long-lasting potentiation revealed in tissue plasminogen activator mutant mice. **J Neurosci** 16:2057-2063. Times Cited: 138
6. Putz U, Skehel P, Kuhl D (1996) A tri-hybrid system for the analysis and detection of RNA-protein interactions. **Nucleic Acids Res** 24:4838-4840. Times Cited: 51
7. Kuhl D, Skehel P (1998) Dendritic localization of mRNAs. **Curr Opin Neurobiol** 8:600-606. Times Cited: 73
8. Kauselmann G, Weiler M, Wulff P, Jessberger S, Konietzko U, Scafidi J, Staubli U, Bereiter-Hahn J, Strebhardt K, Kuhl D (1999) The polo-like protein kinases Fnk and Snk associate with a Ca<sup>2+</sup>- and integrin-binding protein and are regulated dynamically with synaptic plasticity. **EMBO J** 18:5528-5539. Times Cited: 82
9. Konietzko U, Kauselmann G, Scafidi J, Staubli U, Mikkers H, Berns A, Schweizer M, Waltereit R, Kuhl D (1999) Pim kinase expression is induced by LTP stimulation and required for the consolidation of enduring LTP. **EMBO J** 18:3359-3369. Times Cited: 38
10. Waltereit R, Dammermann B, Wulff P, Scafidi J, Staubli U, Kauselmann G, Bundman M, Kuhl D (2001) Arg3.1/Arc mRNA induction by Ca<sup>2+</sup> and cAMP requires protein kinase A and mitogen-activated protein kinase/extracellular regulated kinase activation. **J Neurosci** 21:5484-5493. Times Cited: 80
11. Wulff P, Vallon V, Huang DY, Volkl H, Yu F, Richter K, Jansen M, Schlunz M, Klingel K, Loffing J, Kauselmann G, Bosl MR, Lang F, Kuhl D (2002) Impaired renal Na<sup>+</sup> retention in the sgk1-knockout mouse. **J Clin Invest** 110:1263-1268. Times Cited: 148
12. Chowdhury S, Shepherd JD, Okuno H, Lyford G, Petralia RS, Plath N, Kuhl D, Huganir RL, Worley PF (2006) Arc/Arg3.1 interacts with the endocytic machinery to regulate AMPA receptor trafficking. **Neuron** 52:445-459. Times Cited: 69
13. Shepherd JD, Rumbaugh G, Wu J, Chowdhury S, Plath N, Kuhl D, Huganir RL, Worley PF (2006) Arc/Arg3.1 mediates homeostatic synaptic scaling of AMPA receptors. **Neuron** 52:475-484. Times Cited: 76
14. Plath N\*, Ohana O\*, Dammermann B, Errington ML, Schmitz D, Gross C, Mao XS, Engelsberg A, Mahlke C, Weizl H, Kobalz U, Stawrakakis A, Fernandez E, Waltereit R, Bick-Sander A, Therstappen E, Cooke SF, Blanquet V, Wurst W, Salmen B, Boesl MR, Lipp HP, Grant SGN, Bliss TVP, Wolfer DP, Kuhl D (2006) Arc/Arg3.1 is essential for the consolidation of synaptic plasticity and memories. **Neuron** 52:437-444. \*The first two authors contributed to an equal extent. Times Cited: 64
15. Park S, Park JM, Kim S, Kim JA, Shepherd JD, Smith-Hicks CL, Chowdhury S, Kaufmann W, Kuhl D, Ryazanov AG, Huganir RL, Linden DJ, Worley PF (2008) Elongation factor 2 and fragile X mental retardation protein control the dynamic translation of Arc/Arg3.1 essential for mGluR-LTD. **Neuron** 59:70-83. Times Cited: 11

Website with personal information  
<http://www.zmnh.uni-hamburg.de>